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09/913,501	08/15/2001	Takanori Yamashita	DAIN:646	9600

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Parkhurst & Wendel

Suite 210

1421 Prince Street

Alexandria, VA 22314-2805

EXAMINER

KRUER, KEVIN R

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/913,501

Applicant(s)

YAMASHITA ET AL.

Examiner

Kevin R Kruer

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 77-110 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 103-110 is/are allowed.
- 6) ☐ Claim(s) 77-102 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 89-99 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the original disclosure for a process in which the adhesive resin is cooled "at a temperature not higher than a softening point of the adhesive resin layer by passing the laminated sheet between a chill roll and a pressure roll."

5. Claims 89-102 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the original disclosure for heating the innermost layer at a temperature "not lower than its softening point and not higher than its melting point."

Claim Objections

6. The objections to claim 4, 48, 49, 59, and 60 have been overcome by the cancellation of the claims.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 77 and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of DE 1291595A (herein referred to as "Zumstein"). Chow teaches a metallic foil covering for a battery (abstract). The foil comprises a metallic foil, a thermoplastic adhesive film, (col 1, lines 65+) and an optional protective layer on the surface of the metal foil opposite the thermoplastic adhesive (col 2, lines 36+). The thermoplastic adhesive (herein relied upon to read on the claimed "innermost layer") comprises any thermoplastic resin that adheres to the metal foil and is heat-sealable to the plastic battery housing (col 2, lines 5+). The metal foil is preferably aluminum (col 3, example 2).

Chow does not teach that the aluminum foil should be conversion coated prior to lamination. However, Zumstein teaches a conversion coating for protecting metal surfaces against corrosion and improved adhesion to coatings. The coating comprises a polymethylol phenol (herein understood to read on the claimed "phenolic resin"), phosphoric acid, and chromic acid. The examiner notes that trivalent chromium phosphate results when phosphoric and chromic acids are combined. Said conversion coating can be applied to a variety of metal substrates, including steel and aluminum (col 3, lines 55; according to an oral translation). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the conversion coating taught in Zumstein to both sides of the metal foil taught in Chow. The motivation for doing so would have been to increase the foil's corrosion resistance and adhesion to coatings.

9. Claims 79, 81 and 82 rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of DE 1291595A (herein referred to as "Zumstein"), as applied to claims 77 and 84 above, and further in view of and further in view of Koike (US 4,664,994) and Fitko et al (US 4,156,672). Chow in view of Zumstein is relied upon as above. Specifically, Chow teaches that any thermoplastic resin that adheres to the aluminum foil and is heat-sealable to the plastic battery housing may be used as the thermoplastic adhesive (col 2, lines 1+). Chow does not teach that the thermoplastic adhesive may comprise polypropylene. However, Koike teaches a jacket for a battery wherein the jacket comprises an inside contacting layer made of polyolefin (abstract). Polyolefins are utilized because of their excellent heat-sealing properties

Art Unit: 1773

and acid resistance (col 2, lines 44+). Suitable polyolefins include polypropylene (col 2, lines 55+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize polypropylene as the thermoplastic adhesive taught in Chow because Koike teaches polypropylene has been used equivalently in the battery jacket art as inner heat-sealable layers of multi-layered battery jackets.

Furthermore, polypropylene has excellent a Chow also does not teach that the innermost layer may comprise two or more layers: and adhesive layer and an innermost resin layer. However, Fitko teaches that carboxyl modified polypropylene resins can be utilized as adhesion promoters for laminating propylene resin to aluminum foil (col 1, lines 27+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize an carboxyl modified polypropylene adhesive layer between the polypropylene innermost layer and the aluminum foil layer. The motivation for doing so would have been to increase adhesion between propylene and aluminum.

With regard to the limitations of claims and 81 and 82, the examiner takes the position that the method of making a product does not patentably distinguish the claimed product from a product rendered obvious by the prior art unless it can be shown that the claimed method of making the product inherently results in a materially different product. In the present case, there is no such showing. The examiner takes the position that he laminate rendered obvious by the prior art reads on the claimed laminates of claims 81 and 82 because the laminates comprise the same layers, the same relative orientation, and the same compositions as the claimed laminates.

10. Claims 79 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of DE 1291595A (herein referred to as "Zumstein"), as applied to claims 77 and 84 above, and further in view of JP 8806781B (herein referred to as Mitsui), and Fitko (US 4,156,672). Chow in view of Zumstein is relied upon as above, but does not teach that the thermoplastic adhesive may comprise propylene-ethylene-butene terpolymer. However, Mitsui teaches an adhesive composition useful for improving adhesion between aluminum and polyolefins, such as the polyolefin utilized as the plastic battery housing. Said composition comprises a terpolymer of propylene-ethylene and butene (see abstract). The terpolymer comprises 0.1-10% ethylene and 1-30% butene. Thus, it would have been obvious to one of ordinary skill in the art to utilize the terpolymer as the thermoplastic layer taught in Chow because Chow teaches any thermoplastic layer which adheres to the metal foil and is heat sealable to the plastic battery housing may be utilized.

Chow also does not teach that the adhesive layer between the innermost layer and the adhesive layer may comprise acid-modified polypropylene. However, Fitko teaches that carboxyl modified polypropylene resins can be utilized as adhesion promoters for laminating olefin resin to aluminum foil (col 1, lines 27+). Thus, it would have been obvious to one of ordinary skill in the art to utilize carboxyl modified polypropylene between the innermost layer and the aluminum foil layer of the laminate taught in Chow. The motivation for doing so would have been to increase the adhesion between thermoplastic adhesive and aluminum.

With regard to the limitations of claims 81 and 82, the examiner takes the position that the method of making a product does not patentably distinguish the claimed product from a product rendered obvious by the prior art unless it can be shown that the claimed method of making the product inherently results in a materially different product. In the present case, there is no such showing. The examiner takes the position that the laminate rendered obvious by the prior art reads on the claimed laminates of claims 81 and 82 because the laminates comprise the same layers, the same relative orientation, and the same compositions as the claimed laminates.

11. Claims 86 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of DE 1291595A (herein referred to as "Zumstein"), as applied to claims 77 and 84 above, and further in view of JP 75037688B (herein referred to as Sanyo). Chow in view of Zumstein is relied upon as above. Specifically, Chow teaches any thermoplastic resin that adheres to the aluminum foil and is heat-sealable to the plastic battery housing may be used as the thermoplastic adhesive (col 2, lines 1+). Chow does not teach that the thermoplastic adhesive should comprise ethylene rich polypropylene. However, Sanyo teaches an adhesive agent for bonding polyolefin articles to metal surfaces (abstract). Said adhesive agent comprises propylene-ethylene copolymer having 2-15wt% ethylene. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the ethylene rich polypropylene taught in Sanyo as the thermoplastic adhesive taught in Chow. The motivation for doing so would have been to assure good adhesion to the polypropylene battery housing.

12. Claims 79 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of DE 1291595A (herein referred to as "Zumstein"), as applied to claims 77 and 84 above, and further in view of JP 75037688B (herein referred to as Sanyo), and Fitko (US 4,156,672). Chow is relied upon as above, but does not teach that the thermoplastic adhesive may comprise ethylene rich polypropylene. However, Sanyo teaches an adhesive agent for bonding polyolefin articles to metal surfaces (abstract). Said adhesive agent comprises propylene-ethylene copolymer having 2-15wt% ethylene. It would have been obvious to one of ordinary skill in the art to utilize the terpolymer as the thermoplastic layer taught in Chow because Chow teaches any thermoplastic layer which adheres to the metal foil and is heat sealable to the plastic battery.

Chow also does not teach that the adhesive layer between the innermost layer and the adhesive layer may comprise acid-modified polypropylene. However, Fitko teaches that carboxyl modified polypropylene resins can be utilized as adhesion promoters for laminating propylene resin to aluminum foil (col 1, lines 27+). Thus, it would have been obvious to one of ordinary skill in the art to utilize carboxyl modified polypropylene between the innermost layer and the aluminum foil layer of the laminate taught in Chow because said composition is taught by Fitko to increase adhesion between propylene and aluminum.

With regards to the method limitations, the courts have held that the method of making the laminate does not differentiate the claimed laminate from the laminates rendered obvious by the prior art unless it can be shown that the method of making the

laminate inherently results in a materially different product. The examiner considers the claims to be rendered obvious by the applied art because the laminate comprises the claimed layers comprising the claimed compositions.

13. Claims 78, 80 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noh (US 6,242,131) in view of Komai et al (US 6,238,783) and Bainbridge et al (US 4,002,502). Noh teaches a battery jacket comprising at least three layers: an innermost hermetically sealing layer (understood to read on the claimed "innermost resin layer"), an aluminum layer, and a nylon outermost layer (understood to read on the claimed "base layer") (abstract). The aluminum sheet should have a thickness of 30-50um (col 3, line 30). Furthermore, an adhesive layer (herein understood to read on the "adhesive resin layer") may be applied between the innermost hermetically sealing layer and aluminum layer or outermost layer and aluminum, respectively (col 3, lines 40+).

Noh does not teach that the aluminum layer should be conversion coated prior to lamination. However, Komai teaches that there are several surface pretreatments that can be done to aluminum sheets in order to improve adhesion of a thermoplastic resin layer to the aluminum sheet (col 1, lines 40+). One such treatment is the chemical treatment of the aluminum sheet with a phosphate solution (col 1, lines 45+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to phosphate coat both sides of the aluminum sheet taught in Noh. The motivation for doing so would have been to improve the adhesion of the thermoplastic layers thereto.

Noh does not teach that the aluminum layer should comprise 0.3-9.0wt% iron. However, Bainbridge teaches an aluminum alloy comprising 0.5-10wt% iron (abstract). Bainbridge teaches that such alloys have improved workability over aluminum (col 1, lines 6+). Thus, it would have been obvious to one of ordinary skill in the art to utilize an aluminum alloy comprising 0.5-10wt% iron as the aluminum layer taught in Noh. The motivation for doing so would have been to increase the aluminum sheet's workability.

14. Claims 78, 80, and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783) and Bainbridge et al (US 4,002,502). Chow teaches a metallic foil covering for a battery (abstract). The foil comprises a metallic foil, a thermoplastic adhesive film, (col 1, lines 65+) and an optional protective layer on the surface of the metal foil opposite the thermoplastic adhesive (col 2, lines 36+). The thermoplastic adhesive (herein relied upon to read on the claimed "innermost layer") comprises any thermoplastic resin that adheres to the metal foil and is heat-sealable to the plastic battery housing (col 2, lines 5+). The metal foil preferably is aluminum (col 1, line 66) with a thickness of 10-100um (col 2, line 18).

Chow does not teach that the aluminum foil should be conversion coated prior to lamination. However, Komai teaches that there are several surface pretreatments that can be done to aluminum sheets in order to improve adhesion of a thermoplastic resin layer to the aluminum sheet (col 1, lines 40+). One such treatment is the chemical treatment of the aluminum sheet with a phosphate solution (col 1, lines 45+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was

Art Unit: 1773

made to phosphate coat both sides of the aluminum sheet taught in Chow. The motivation for doing so would have been to improve the adhesion of the thermoplastic layers thereto.

Chow does not teach that the aluminum layer should comprise 0.3-9.0wt% iron. However, Bainbridge teaches an aluminum alloy comprising 0.5-10wt% iron (abstract). Bainbridge teaches that such alloys have improved workability over aluminum (col 1, lines 6+). Thus, it would have been obvious to one of ordinary skill in the art to utilize an aluminum alloy comprising 0.5-10wt% iron as the aluminum layer taught in Chow. The motivation for doing so would have been to increase the aluminum sheet's workability.

15. Claims 87 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783) and Bainbridge et al (US 4,002,502), as applied to claims 78, 80, and 85 above, and further in view of JP 75037688B (herein referred to as Sanyo). Chow is relied upon as above. Specifically, Chow teaches that any thermoplastic resin that adheres to the aluminum foil and is heat-sealable to the plastic battery housing may be used as the thermoplastic adhesive (col 2, lines 1+). Chow does not teach that the thermoplastic adhesive may comprise ethylene rich polypropylene. However, Sanyo teaches an adhesive agent for bonding polyolefin articles to metal surfaces (abstract). Said adhesive agent comprises propylene-ethylene copolymer having 2-15wt% ethylene. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the ethylene rich polypropylene taught in Sanyo as the thermoplastic adhesive taught in Chow. The

motivation for doing so would have been to assure good adhesion to the polypropylene battery housing.

Allowable Subject Matter

Claims 103-110 are allowable over the prior art.

Specifically, the prior art fails to teach the claimed method of making the polymer battery module packaging sheet wherein the surface processed by the chemical conversion treatment of the aluminum layer is heated at a temperature not lower than the softening point of the adhesive resin.

Response to Arguments

Applicant's arguments with respect to claims 1-76 have been considered but are moot in view of the new ground(s) of rejection.

The rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1) has been overcome by amendment. Komai does not teach the newly claimed chemical treatment and/or iron content.

The rejection of claims 2, 3, 5-8, and 50-53 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), and Koike et al (US 4,664,994) has been overcome for the reasons stated above.

The rejection of claims 1 and 9 under 35 U.S.C. 103(a) as being unpatentable over Noh (US 6,242,131) in view of Komai et al (US 6,238,783) has been overcome by amendment. Komai does not teach the newly claimed chemical treatment and/or iron content.

The rejection of claims 2, 3, and 5-8, under 35 U.S.C. 103(a) as being unpatentable over Noh (US 6,242,131) in view of Komai et al (US 6,238,783), and Koike et al (US 4,664,994) is overcome for the reasons stated above.

The rejection of claims 1, and 9-14 under 35 U.S.C. 103(a) as being unpatentable over Noh (US 6,242,131) in view of Komai et al (US 6,238,783), Koike et al (US 4,664,994), and Fitko et al (US 4,156,672) has been overcome by amendment. Komai does not teach the claimed chemical treatment and/or iron content

The rejection of claims 1, 9, and 15-25 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), JP 8806781B (herein referred to as Mitsui), and Fitko (US 4,156,672) has been overcome by amendment. Komai does not teach the claimed chemical treatment and/or iron content.

The rejection of claims 1, 9, and 26-31 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Koike et al (US 4,664,994), and Aoyama et al (US 4,597,818) has been overcome by amendment. Komai does not teach the claimed chemical treatment and/or iron content.

The rejection of claims 1, 9, 32-35, and 37-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), JP 75037688B (herein referred to as Sanyo), and Fitko (US 4,156,672) has been overcome by amendment. Komai does not teach the claimed chemical treatment and/or iron content.

The rejection of claims 36 and 42 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), JP 75037688B (herein referred to as Sanyo), and Fitko (US 4,156,672), as applied to claims 1, 9, 32-35 and 37-41 above, and further in view of Haruta et al (US 3,773,609) has been overcome for the reasons stated above.

The rejection of claims 43, 49, 54, and 60 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Fukuda et al (US 6,245,456), and Kiriazis (US 6,083,336) has been overcome for the reasons stated above.

The rejection of claims 57 and 58 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Fukuda et al (US 6,245,456), and Kiriazis (US 6,083,336), as applied to claims 43, 49, and 54 above, and further in view of Koike et al (US 4,664,994) has been overcome for the reasons stated above.

The rejection of claims 44, 49, 55, 60, 61, and 62 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Fitko et al (US 4,156,672), Ferment (US 5,650,243), and Kiriazis (US 6,083,336) has been overcome.

The rejection of claims 46, 47, 65, and 66 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Fitko et al (US 4,156,672), Ferment (US 5,650,243), and Kiriazis (US 6,083,336), as

applied to claims above, and further in view of Koike et al (US 4,664,994) has been overcome.

The rejection of claims 45 and 56 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Fitko et al (US 4,156,672), and Kiriazis (US 6,083,336) has been overcome.

The rejection of claims 63, 64, 67, and 68 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Fitko et al (US 4,156,672), and Kiriazis (US 6,083,336), as applied to claims 45 and 56 above, and further in view of Koike et al (US 4,664,994) has been overcome.

The rejection of claims 66-76 under 35 U.S.C. 103(a) as being unpatentable over Chow et al (US 5,134,046) in view of Komai et al (US 6,238,783B1), Fitko et al (US 4,156,672), and Kiriazis (US 6,083,336), as applied to claims 45 and 56 above, and further in view of JP 75037688B (herein referred to as Sanyo) has been overcome.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

Art Unit: 1773

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773



Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700